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REPORT ON

STRATEGIES FOR IMPROVING WOMEN'S ACCESS TO EDUCATION AND TRAINING IN SCIENCE AND TECHNOLOGY IN AFRICA

INTRODUCTION

1. The low level of women's enrolment in science-based training programmes and their involvement in science based professions has been established in Kenya[1], Sierra Leone[2] and Swaziland[3].

2. Similarly, a review of women's access to education and training in science and technology shows a general and definite paucity. Several international conferences on women's education in Africa have expressed the concern about the under-representation of girls and women in science and technology. Research findings by UNESCO and other organizations have pointed out the low enrolment of girls/women in science-based training programmes and the low percentage of women's participation in scientific professions. This situation is not unique to Africa, similar trends occur in America, Europe and the other continents[4].

3. The reasons for this phenomenon of the absence of girls/women from scientific/technical studies are multiple. Among these are: historical, traditional and conventional attitudes which relegate women to the so-called "female subjects"; traditional behavior adopted both within the school and the professional world; at the national level, educational policies do not address themselves directly to the question of women's education; and poor linkages between training and employment.

4. Outside the academic streams, the problem is also acute for girls in technical subjects. Frequently the vocational schools that offer training related to the demands of the job market in technical fields admit very few girls; at other times, those admitted are channeled into domestic, poorly renumerated or dead and fields. Albeit these problems have not been properly and sufficiently documented in African countries, most of these problems affect girls directly.

5. Women's education is of fundamental importance to enhance their role and active participation in national development. Unfortunately the illiteracy rate in Africa is quite high. It is higher for women than men in many African countries. In Nigeria in 1985, 59 % of the males and 67 % females were illiterates and in Togo 59% and 74 % respectively[5]. There is also a disparity in the illiteracy rates between the urban and rural population. In Sudan 80 % of the urban children go to school

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[1] Research on "Women and the Scientific Professions in Africa: A Case Study, Kenya", 1988; UNECA/AIECW, Addis Ababa, Ethiopia.

[2] Report on "Women and the Scientific Professions in Africa: A Case Study, Sierra Leone", 1988, UNECA/ATRCW, Addis Ababa, Ethiopia.

[3] A Report on "Research on Women and the Scientific Professions in Africa: The Case of Swaziland", 1988; UNECA/ATRCW, Addis Ababa, Ethiopia.

[4] Women and Science; 1989, UN.DPI/835 (DESI-E/70).

[5] West Africa, weekly magazine, 1989, 26th June to 2nd July, p. 1040.

but only 20 % in the rural areas[6]. Furthermore illiteracy among women is worse in the rural than in the urban areas. In Benin it is 92.1 % and 59.0 % for the rural and urban areas respectively[7]. Indeed if technology should be improved, their access to education must first of all be improved. Strategies for improving women's access to education are highlighted in paragraphs 163-173 in the Nairobi Forward-Looking Strategies for the Advancement of Women[8].

6. Science and technology are the driving forces of economic and social progress. It must be an integral part of education to which every citizen is entitled. In addition improving women's access to education and training in science and technology (S&T) is the responsibility of the government and people of Africa particularly women. To this end, they have been active as is exemplified by the Arusha Strategies for the Advancement of Women in Africa[9] which describes issues in the area of S&T in industrial development for Africa, agriculture and food production, and human resource development. Paragraphs 200-205 of the Nairobi Forward-Looking Strategies for the Advancement of Women refer to S&T and paragraph 203 in particular recommends that "major efforts should be undertaken and effective incentives created to increase the access of women to both scientific and technological education and training". This working paper is part of the efforts being undertaken to achieve this goal.

7. The task of improving women's access to scientific and technological education will not be easy considering the cost of science educaiton and the fact that over 30 countries in Africa are still regarded as least developed. However since women are resourceful they must be encouraged to study S&T, and strategies must be developed to improve their access to education and training in S&T. There is need for women/girls in Africa to acquire new attitudes and values for effective living in a scientific world. Skills in handling technological products, attitude to scientific pursuits values of science are all areas of change which women in Africa need to be equipped with if they are to be effectively integrated into the development process.

8. This paper is a synthesis of three case studies undertaken in Kenya, Sierra leone and Swaziland on "Women and the Scientific Professions in Africa". The objective of the paper is to review and assess the level of womens enrolment in science-based training programmes and their involvement in scientific-based occupations. The paper has also attempted to review and assess career opportunities and prospects for women in the sciences. Progress made by women

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[6] Ibid.

[7] Women News, 1988, No. 25, p. 3.

[8] The Nairobi Forward-looking Strategies for the Advancement of Women: UN Decade for Women; Nairobi, Kenya, 1985.

[9] The Arusha Strategies for the Advancement of Women in Africa, 1985; UNECA, Addis Ababa, Ethiopia.

in Africa to enter into the scientific-based professions and training programmes since the UN Decade for Women is also reviewed. Recommendations and strategies for improving women's access to education and training in science and technology are presented.

9. Part I presents new trends in science and technology; part II outlines some of the barriers which prevent girls/women from actively participating in S&T training and professions; part III of the report deals with career opportunities and prospects for female scientists and technologists with suggestions for improving career opportunities and prospects for female scientists and technologists with suggestions for improving career opportunities and prospects; progress made by women in Africa, in entering science/technology based training programmes and the scientific professions since the UN Decade for women is reviewed and assessed in part IV. The paper concludes by emphasizing that women will have to be more instrumental in adopting the strategies suggested and recommendations made.

I. NEW TRENDS IN SCIENCE AND TECHNOLOGY

10. The rate at which S&T is advancing in the developed countries is very fast and this trend will continue. This is a challenge to Africa as she cannot affort to be left too far behind. These New and Emerging Science and Technology (NEST) include, biotechnology, microelectronics, computer technology, chemical technology and so on.

11. Some of these technologies have opened new possibilities that could be exploited to women's advantage. Microwave ovens have reduced the cooking time considerably. It also utilises less energy. International communication is now very fast thus elimination of communication barriers. For example fax, teleconferencing and distance education. Also the use of walk-man for educational purposes is also very popular.

12. This section will discuss the role of the United Nations Economic Commission for Africa (UNECA) in the information dissemination of NEST. Also NEST in the area of agriculture, energy and natural resources will be mentioned. Its effects on women's employment will be outlined. Finally recommendations are made which, if adopted, it is hoped would go a long way in reducing the technological gap between Africa and the developed countries.

UNECA's Role in the Dissemination of Information on NEST

13. The UNECA is very active in the dissemination of information on NEST to African governments. Being aware of the positive and negative impact of some of these technologies, ECA is making all effort to alert African governments to some of the opportunities; limitations and threasts posed by NEST. To this end several meetings, seminars and workshops have and will be held. African governments have also been urged to formulate national biotechnological policies and strategies. A meeting will also be convened to formulate strategies to lessen some of the adverse effect of NEST. Also study tours to Japan and Korea to find out how they

are coping with negative impacts will be planned[10]. Other computerised data basis at PADIS (Pan African Development and Information System) based at UNECA. An advanced Technology Alert System for Africa (ATAS-Africa) will be launched. ECA has also alerted African governments to some of the effects of NEST on agriculture, and natural resource exports.

Effects on Agriculture

14. Biotechnology has resulted in the production of high yield variety of crops. In Africa women produce most of the food in the rural areas. These varieties would increase productivity which would result in the increase in food production. The livestock production can also be increased with genetic engineering. This increase in productivity can result in increased income and living standards of women. On the contrary commodities such as sugar, palm-oil, and cacao could be produced by biotechnology at a lower cost in factories; leading to little or no demand for these commodities. Many women in farming would be put out of business. Female farmers will have to look for other sources of income or concentrate on the production of crops for which cheaper substitutes are not available. Not only female farmers will suffer but also national economies e.g. Côte d'Ivoire's and Ghana's economy depend a lot on the exportation of cacao.

Natural Resource Export

15. UNECA has also observed that with NEST, developed countries have been able to produce cheaper substitutes for natural raw materials such as aluminium, copper, iron, nickel[11]. As research on substitutes for natural raw materials improve the demand for these raw materials would decrease. It would affect the already ailing economies of many African countries. Zambia for exemple depends on the exportation of copper. One of the consequences would be increased unemployment. This trend has already been reported in the introduction of computer technology in south-east Asia.

Effect on Women's Employment

16. Goodman[12] has observed that the introduction of computer technology has had negative consequences for women's employment. In the same paper it was also suggested that there is need for active strategies regarding women's employment and technological change.

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[10] "Challenges for Science and Technology Promotion in Africa: Problems, Priorities and Action", 1988. German Foundation for International Development (DSE), Bonn, Germany, Karl Wkolfgang Menck (Ed).

[11] Ibid.

[12] Sara Goodman: "Impact of Technological Innovation on Women in Commerce and Industry" in Technology and Gender; Women's Work in Asia, 1987, p. 74. Ed: Cecilia Ng, Women's Studies Unit, UPM and Malaysian Social Science Association.

17. Stevens[13] [p. 101] also reported that the use of word processors have resulted in the unemployment of typists. In some African countries e.g. Sierra Leone, most of the typists are women. However the workload of those who have not been displaced have been lightened. The task of typing and correcting scripts have been made very easy. With home computers women can also work at home. The retraining of displaced women such that meaningful employment can be obtained has been suggested[14].

Energy

18. The production of renewable energy such as solar, wind and biogas would help a long way in solving the energy problem. Usually women have to walk long distances to fetch wood. If other sources of energy are available it would help towards cutting down on this chore. Deforestation and its attendant problems whould be solved thereby protecting the environment. Solar energy can be used in the drying of crops and in food procession. Once the initial cost of setting up o renewable energies have been borne, they need very little maintenance and no fuel[15]. They also have a long life span.

19. One setback is that women particularly in rural areas cannot afford to use some of these technologies. The provision of funds in the form of grants or credits has been suggested.

20. In order to narrow the gap between science and technology in Africa and the developed world, and also that more women benefit from NEST the following are recommended :

1. More research on NEST and its impact on women should be undertaken.

2. Girls/women should be encouraged to study new disciplines such as biotechnology, genetic engineering, computer technology and informatics.

3. Training opportunities in NEST within Africa should be increased.

4. African governments should formulate policies on the adoption of NEST.

5. Women be actively involved in the formulation, adoption and implementation of NEST policies.

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[13] "Science Technology and Women: A World Perspective" edited by S. Malcom, H. Morita-Lou, P.A. Boulaware and S.M. Burns. American Association for the Advancement of Science in co-operation with the Centre for Science and Technology for Development, U.N. 1985. AAAS Publication 85-14.

[14] Ibid.

[15] Ibid.

6. The active participation of women in workshops organized by UNECA be encouraged.

7. African governments be encouraged to make more effort in popularising NEST and its implications.

8. All users of NEST be made aware of some of the health hazards involved.

9. Further research into some of the health hazards involved be encouraged;

10. There should be more North-South cooperation in NEST to the benefit of all concerned.

II. OBSTACLES AGAINST THE ACTIVE PARTICIPATION OF FEMALES IN S&T TRAINING AND PROFESSIONS

21. In order that the access of girls/women to S&T training and profession be improved, the obstacles must be identified and strategies for overcoming them adopted. In this section the obstacles discussed are:

- lack of role models;
- negative cultural attitudes;
- the brain drain;
- the generally poor performance of girls;
- health and safety hazards;
- inadequate infrastructure and facilities; and
- the present economic crisis.

22. Recommendations are made on how to convert these stumbling blocks into stepping stones. Also recommendations are made in the areas of:

- training;
- policy women;
- rural women;
- the popularisation of S&T; and
- cooperation.

Lack of Role Models

23. Role models play an important part in attracting girls to S&T courses and S&T professions. If a girl has never encountered a woman scientist or technologist she will take it for granted that S&T are not for women but for men. She would also have no interest in pursuing a career in science or technology irrespective of whether she has the ability or opportunity.

Recommendations

1. Girls should visit industries, research and other institutions where women scientists and technologists hold top positions.

2. The achievements of women scientists and technologists should be publicised nationally and internationally on radio, televesion and in the newspapers.

3. These women scientists should also be interviewed on radio and television about their lives and work. These should be given maximum publicity.

4. The interviews should be broadcasted in indigenous languages where appropriate.

5. Women scientists and technologist should visit schools and give talks about career and job prospects in the different areas of S&T.

6. A national directory of women scientists and technologists and their achievements should be published in the official and indigenous languages and the publication should be widely circulated particularly to girls and women.

7. S&T prizes should be awarded to deserving girls/women at all levels of education.

8. Awards should also be given to outstanding female scientists and technologists.

9. Governments and other employees should make deliberate effort to appoint qualified women scientists and technologists to decision making positions.

10. A profile of African women scientists and technologists should be published and widely circulated regionally and internationally.

Negative Cultural Attitudes

24. The negative cultural attitude towards the education of girls and the higher premium placed by the society on marriage, motherhood and family life than in a career for women has contributed in no small measure to their marginal representation in S&T training and professions. It is believed that higher education jeopardizes a woman's chances of getting married. There is also societal pressures including peer pressure not to take up "Unladylike" professions such as being a motor mechanic.

Recommendations

1. Girls should not be given away early in marriage. Women should continue their education after marriage. Family life can successfully be combined with a career.

2. Teenage mothers should be given the opportunity to continue their education.

3. Governments should make every effort to improve the access of girls/women to education. A Women's Education Unit should be set up in all Ministries of Education. This Unit will among other things monitor the progress being made towards increasing the access of girls/women to education in general and S&T education in particular.

4. Girls/women should be encouraged by their parents, teachers and the society to study S&T up to university level.

5. Women's organizations should be instrumental in encouraging girls and women to study S&T.

Brain-Drain

25. The brain-drain has adversely affected the standard of education particularly science education and there is cause for concern.

26. There is in a lot of African countries a high level of out migration of scientists (teachers, lecturers and other professionnals) to the developed countries. Also after completion of their course of study these professionals continue residing in the host country or migrate to other countries in the North. There is also a movement of scientists and technologists out of the scientific professions into other areas which do not have any relationship to their scientific training.

Recommendations

1. Improved remuneration, working conditions and living standards of scientists and technologists.

2. Incentive should be given to science teachers e.g. science teachers allowance.

3. In order to combat this problem, governments should adopt a policy of improving the status and conditions of service of scientists and technologists.

Poor Performances

27. The generally poor performances of girls at the General Certificate of Examination Ordinary Level or its equivalent particularly in maths and physics prevent them from pursuing more advanced courses in the sciences. There are certain minimum entry requirements which must be obtained before their career can be continued. At this point quite a good number of girls give up studying the sciences.

Recommendations

1. The teaching of S&T must be thoroughly researched into particularly mathematics and physics. All efforts should be made to improve the standards of mathematics and physics at all levels of education.

2. The opportunity for further studies is highly dependant on the education received at earlier levels. Therefore more effort should be made by governments to improve the quality of primary and secondary education especially science education by providing the necessary inputs. Improved conditions of service for primary and secondary school teachers is recommended.

3. Governments should give high priority to the training of highly qualified teachers.

4. The methods of teaching of S&T should be improved upon. More use should be made of visual aids utilising local materials.

5. There should also be active students participation and emphasis should be laid on practical work and hands-on experience.

Health and Safety Hazards

28. This is of a particular threat to women in S&T. The health of their unborn children may also be affected.

Recommendations

1. Governments should enact and revise legislation to ensure a safe and healthy workplace.

2. Health and safety standards should be substantially enforced in all laboratories and working places.

3. There should be a safety officer in all institutions who would make sure that all safety standards are adhered to.

4. Unions should also ensure that there is proper and adequate health and safety conditions in the working places.

5. NGO's can also publicise data on health and safety thus raising public awareness.

Inadequate Infrastructure and Facilities

29. This is partly due to the rapid population growth rate in many African countries. Schools, colleges and other institutions have not expanded as fast as the population growth rate.

Recommendations

1. Governments should increase their budget to S&T education and adequate funding should be provided at all levels.

2. Governments with the help of NGOs can also seek funding internationally to improve infrastructure and facilities available in S&T institutions. Contributions in kind can also be solicited.

3. Institutions in collaboration with NGOs should also circulate budget proposals internationally and seek help both in cash and kind.

The present Economic Crisis

30. It has resulted in the high and escalating cost of education and of running S&T institutions. In some cases parents have no choice but to withdraw their children from school. Girls are usually withdrawn in preference to boys thereby contributing to the high drop out rate for girls. Also some women do not further their education after secondary school or university because of lack of funds. In some institutions courses are withdrawn because of costs and in certain cases only a few practical classes are organized. The running of S&T courses could be very expensive particularly practical courses.

Recommendations

1. More fellowships which should be widely advertised should be made available by governments, local business people, transnational cooperations and international bodies to girls/women particularly those from the rural areas. This should be given at all levels of education. The more prosperous African nations can also offer fellowships to female nationals of other countries.

2. Funding should also be sought by institutions nationally and internationally for the running of the institutions.

3. Judicious use should be made of funds and other available resources.

4. The sharing of teachers, facilities and resources where applicable is also recommended.

5. A national science equipment production, maintenance and repairs unit should be established in countries where they do not exist.

6. The development of low cost science equipment should be encouraged.

Other Recommendations

Training

1. The content, method and materials for the teaching of S&T must be revised to make them relevant to the needs and aspirations of girls/women.

2. Active pupil/student participation at all levels should be encouraged. More emphasis should be put on practical work.

3. Teaching methods should be improved at all levels particularly at the primary level. There should be in-service training for teachers at all levels with the aim of improving the quality of S&T education.

4. Career guidance and counselling by trained personnel should be available at all schools and colleges.

5. More emphasis should be put on maths and science at teacher training colleges particularly for primary school teachers. They should also be compulsory subjects for primary school teachers udergoing training.

6. The development of low cost S&T equipment should be part of teacher training at the primary and secondary school levels.

7. S&T education should be part of adult non-formal education programmes particularly in the rural areas. The curricula should relate to their everyday life.

8. Overseas exchange programmes, study tours and refresher courses should be organized.

Policy Issues

1. There should be more in policy making positions in the education field.

2. Governments should adopt policies and strategies to reduce the high illiteracy rates among women.

3. There should be education policies aiming at increasing the access of girls/women to education in general and S&T education in particular.

4. Science and technology policies and programmes should encourage the greater participation of women scientists and technologists in the development process.

5. Governments should prepare plans for improving endogenous technologies which will reduce the work load of women.

Rural Women

31. There is a focus on rural women because their access to the use of S&T and S&T education is less than that of the urban women. Moreover they are in the majority and they also produce the bulk of the agricultural produce. Therefore they must be given priority in S&T activities.

Recommendations

1. Efforts to reduce illiteracy rates among women in the rural areas should be intensified.

2. Girls/women in the rural areas should be assisted to improve their literacy in S&T by organizing seminars and workshops. These workshops should be organised by women NGOs.

3. When new technologies are introduced it must be ensured that the women are not displaced by men. Women and men should work in collaboration.

4. Research should be undertaken to assess the impact of newly introduced technologies on women.

5. Technologies introduced should be ones which the women can affort to use, maintain or hire.

6. Technologies which reduce their workload and increase productivity should be introduced. However it should be ensured that there is a market for the produce and also the rate of inflation should be such that increase production would result in an improvement in the standard of living.

7. Needs assessment surveys should be carried out to find out areas in which S&T training is needed most.

8. S&T research activities should give priority to the development of rural based technologies.

9. Research findings should be popularized and utilized particularly in the rural areas.

The Population of S&T

32. This can be achieved using the following strategies :

(a) Conscious effort must be made to popularize S&T by having frequent exhibitions, public lectures, essay competitions, radio and television programmes and so on, whereby the public would be informed of the potentials offered by the appropriate use of S&T;

(b) More use should be made of the mass media to popularize S&T particularly among girls and women in both the urban and rural areas. This would help to eliminate the attitude that some S&T fields are for men not to be trespassed by women;

(c) Radio and television should be used to present S&T in ways that are attractive and relevant to women especially those in the rural areas;

(d) The local languages should be used in the dissemination of S&T information to the public;

(e) S&T clubs should be formed for girls/women in shools, colleges and other educational institutions;

(f) The formation of a national association of women in S&T. This association will monitor and publicise activities to increase the participation of women in S&T and also plan workshops, seminars and other events. Other activities should inclure publication of a news letter.

Cooperation

33. In order that some of the above recommendations can be implemented there has to be cooperation at the nationa land international levels. At the national elvel government, NGOs, schools, colleges and other scientific institutions have to work together. At the international level the cooperation can be regional, North-South and South-South.

34. An inventory of S&T manpower, institutions and equipment should be available for every African country. This will facilitate the pooling of resources particularly in areas such as manpower, training, information and documentation.

Career opportunities and prospects for female scientists and technologists

35. Since the enrolment of women in S&T based training is low indeed, it is not surprising that they are marginally represented in the S&T professions.

In this section the following will be discussed:

- african Government's policy on career opportunities for girls/women;
- professions preferred by women;
- the effect of the current economic and debt crisis on job opportunities and prospects; and
- employers' prejudice.

36. Finally the present prospects is assessed and recommendations made to overcome some of the problems outlined.

Career opportunities

37. Most African Governments have education policies which cater for equal opportunities for career advancement for men and women. Examples of such countries are Swaziland[16], Nigeria and Tanzania[17]. Most women do not pursue S&T careers because of lack of interest or the prerequisite for pursuing the courses. Entry to such courses (both at home and overseas) is by merit and not by sex.

Professions preferred

38. Most women seem to prefer the biological sciences, medicine and allied professions. Professions in fields such as marine sciences and geology do not seem to appeal to women probably because they involve making long and extended field trips. This is not always very convenient for women who combine a profession with childbearing and childrearing, home and family life. There also seems to be more employment opportunities in areas such as architecture, engineering, computer science, medicine and allied professions than in the pure sciences such as physics, chemistry and geology.

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[16] "Research on Women and the Scientific Professions in Africa: The Case of Swaziland", 1988; UNECA.

[17] UNESCO Second Conference of Ministers Responsible for the Application of Science and Technology to Development in Africa, CASTAFRICA II; (Arusha, Tanzania, 6-15 July 1987). SC-87/CASTAFRICA II/5 prov. Paris, October 1987.

The effect of the economic crisis on job opportunities and prospects

39. Most African countries are going through an economic crisis and they are implementing structural adjustment programmes, which have adversely affected job opportunities and prospects especially in the public sector. Vacancies have been frozen. Also funding for research has been drastically reduced and most women have found it almost impossible to carry out meaningful research.

40. Devaluation is also having a harsh impact on salaries and some women have to take up other jobs (some not having anything to do with their professional training) to supplement their income. Others have found more lucrative jobs or are now business women. They are also isolated from the international S&T community because they cannot afford to subscribe to professional journals and cannot attend international conferences.

Employers' prejudice

41. In certain scientific professions (e.g. geology, fisheries) and in the area of technology, given a choice, most employers prefer men; so qualified women may not find it easy to get a job. Women are viewed as less technically competent than men. In Ghana it took quite a while for a female automechanic to get a job when she qualified because of employer's prejudice. However she does not expect problems getting promoted on the same basis as men[18].

Assessment of prospects

42. Considering the number of women in S&T professions in Africa and the number holding key positions, the prospects and chances of being promoted are good. African women in S&T professions also hold responsible positions in international organizations and in the developed countries for example Britain and America. In view of the above discussion the following recommendations are made.

At the national and local level

(i) The promotion of positive role models of female scientists and technologists;

(ii) Governments and NCC particularly should collect data to determine the present and future scientific and technological manpower needs;

(iii) There should be career guidance and counselling by trained personnel for girls in all schools and colleges;

(iv) The training of women in S and T should be in areas where the needs are greatest;

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[18] Commonwealth Currents, June 1989, p. 7; Published by the Commonwealth Secretariat, Marlborough House, London, England.

(v) Employment of female S and T students during vacation in local industries and institutions should be encouraged. This will provide them with some work experience thereby improving their job prospects;

(vi) Funding agencies should give priority to women in the allocation of funds;

(vii) In the light of the current wave of budget cuts and resultant redundancy, it is important that girls/women are encouraged to pursue careers in which the possibility of eventually being self-employed are great.

At the international level

43. International funding agencies should give more priority to women and should sponsor more research and study tours.

III. THE PROGRESS MADE BY WOMEN IN SCIENCE AND TECHNOLOGY IN AFRICA

44. There has been a steady but slow increase in the number of girls/women in science and technology professions in Africa since the mid-1970s. Efforts have been made by various international organizations and African governments to improve the access of women to science and technology training and professions. Below will be mentioned activities and progress made in some African countries, Nigeria, Zambia [19], Tanzania, Uganda, Ethiopia[20] and Sierra Leone[21]. The activities of some international organizations such as Commonwealth Secretariat, UNESCO, CIDA, (Canadian International Development Agency), TWAS as (Third World Academy of Science) in promoting the role of women in science and technology.

UNESCO

45. UNESCO which is in the forefront of promoting science and technology in developing countries organized CASTAFRICA II for African Ministers in Charge of Science and Technology for Development. This conference was held in Arusha, United Republic of Tanzania from the 8th - 15th July 1987. At this conference participating governments were strongly appealed "to promote the training of researchers, engineers, technicians and other specialists, paying special attention

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[19] "Promoting Science Technology and Mathematics among Girls and Women in Nigeria", 1989. Proceeding of workshop held in Lagos, Nigeria, 30th November - 2nd December 1987. Federal Ministry of Education, Women Education Branch, Lagos, Nigeria.

[20] Report of a Discussion on the 'Role of Women in Science and Technology in Ethiopia", 1988; UNDP, Addis Ababa, Ethiopia.

[21] University of Sierra Leone Quarterly, 1988, 1,2.

to the training of women and encouraging the use of African expertise. Also at the same conference recommendation No.4 focused on "Women in Science and Technology", among the recommendations were that Member States are to encourage the participation of women in science and technological activities including appointment to managerial positions, to membership of governing boards of S&T institutions and to high level delegations".

46. At this same conference (UNESCO CASTAFRICA II), it was reported that in Nigeria both men and women receive the same quality of education and the number of women working in science research laboratories had increased. A national programme for the education of women had also been launched. Legislation against unduly early marriage and premature withdrawal from school is under consideration (p. 30)[22].

47. With the help of UNESCO a two week "science clinic" was organized in Ghana. The purpose of the clinic was to expose girls who have shown aptitude for Science Technology and Mathematics (STM) and also to help improve the quality of science teaching in Ghanaian schools.

48. Also in Nigeria in November 1987 a workshop was held on "Promoting Science, Technology and Mathematics Among Girls and Women in Nigeria". It was organized by the Federal Ministry of Education, Women Education Unit. This was a follow-up of a workshop held in Ghana in January, 1987, "Commonwealth African Regional Workshop on Gender Stereotyping in Science, Technology and Mathematics Education" funded by the Commonwealth Secretariat. At the Nigeria workshop barriers preventing women and girls in participating in science, technology and mathematics education were identified and recommendations made to overcome them. One of the recommendations made which has been implemented is the formation of "Nigerian Association of Women in Science, Technology and Mathematics (NAWSTEM). This association among other things will:

- encourage the learning of STM at all levels of formal education for women and girls;

- identify specific strategies to promote the application of STM in the daily lives of Nigerian girls and women; and

- identify strategies for promoting programmes that will encourage females into STM careers.

49. At the CASTAFRICA II conference, it was also reported that to redress the imbalance between male and female participation in STM the Zambian government has taken the following steps:

- reduction of entry marks for girls in junior secondary schools;

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[22] UNESCO CASTAFRICA II.

- making and science compulsory at lower levels;

- emphasis having been put on mates and science in teachers' colleges; and

- persuasion of boys and girls to take practical subjects hitherto designated for boys or girls and vice versa e.g. boys are encouraged to study home economics, and girls science, engineering, woodwork etc.

50. At the CASTAFRICA II conference the delegation of Tanzania reported that the number of women doctors, pharmacists, engineers and technicians had steadily increased since CASTAFRICA I, held in 1974. The government was making deliberate efforts to integrate more women into scientific activities by providing equality of opportunities with men in this field.

The Commonwealth Secretariat

51. As part of the Commonwealth Secretariat's Action Plan on Women, the Secretariat's education programme will be producing a booklet on the role of African women in their countries' scientific and technological development. Photographs of about a hundred African women scientists, technicians and mechanics and interviews with them about their lives and work will form the basis of the booklet. It is aimed at reversing the high drop out rate of girls and young women at all levels of education. The target groups are young women, teachers, parents, educational administrators and cultural leaders. Tapes of the interviews will also be available to local radio stations[23].

52. This project will contribute a long way to promoting positive role models of women scientists. It is also a strategy to increase the number of girls/women in science-based training and professions. This booklet will be useful to many and no doubt many governments, national, international, and women's organizations are looking forward to its publication. It is fervently hoped that both the booklet and tapes will be given maximum publicity.

Other conferences/seminars held

53. Numerous seminars and conferences have been held on women science and technology among them are:

- "The Role of Women in Science and Technology in Ethiopia" held in Addis Ababa, Ethiopia in November 1988; and

- The CIDA/TWAS conference on "The Role of Women in the Development of Science and Technology in the Third World". This was held in Trieste, Italy in October 1988.

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[23] Commonwealth Currents, June 1989.

54. At this conference there was an African Region Round Table meeting. The discussions included: the Role of Women Scientists in addressing the problem in rural areas and the status of women in science and technology in Africa.

55. It was agreed that the status of women in science and technology in Africa is very low. It was pointed out however that there is a steady but slow increase in the number of women studying or engaging in science and technology fields with the larger percentage in biological and medical professions[24].

56. In September 1983 there was an ad hoc panel of experts meeting "Science, Technology and Women" at South Hadley, Massachussetts, United States of America from 12 to 16 September 1983. At this meeting a delegate from Uganda reported that the General Technical Education (GTE) is emerging as a compulsory subject in schools for both boys and girls. It includes woodwork, elementary mechanics, and working with electrical appliances.

57. In some countries the number of females studying certain science discipline is increasing. Table 1 below gives the percentage of female students at the University of Nairobi, Kenya who studied certain disciplines in 1980/81 and 1987/88 at the undergraduate level.

Table 1: Percentage of female students and discipline studied at the University of Nairobi, Kenya, 1980/81 and 1987/88

Discipline	% Females 1980/81	% Females 1987/88
Architecture and design	13.5	15.7
Building engineering, land economic	17.8	22.4
Engineering	1.5	2.8
Science	10.5	15.9
Veterinary medicine	11.3	13.1

At the post graduate level there is also an increase in the number of females pursuing certain courses as is shown in table 2.

[24] Conference report on "The Role of Women in the Development of Science and Technology in the Third World". Held in Trieste, Italy, 1988, jointly organized by CIDA and TWAS.

Table 2: Post graduate courses

Discipline	% Females 1980/81	% Females 1987/88
Architecture and design	11.7	28.6
Building engineering, land economic	18.2	19.1
Science	11.9	12.7
Veterinary medicine	9.3	16.7
Institute of Computer Science	Not stated	35.7

Source : Research on Women and Scientific Profession in Africa: A Case Study of Kenya, UNECA 1988, p. 10 and p. 11.

58. Also at Fourah Bay College University of Sierra Leone, the number of females enrolled in the engineering faculty is increasing as is shown below:

Table 3: The number of female students enrolled in the Engineering Faculty 1981/82 - 1985/86

Year	No. of Females	Total No. of students
1981/82	4	142
1982/83	7	141
1983/84	11	134
1984/85	12	139
1985/86	13	52

Source : The Registry, Fourah Bay College.

59. The above are just a few examples of the achievements of some female scientists in Africa, and efforts been made by some African Governments and International Organizations. They are by no means exhaustive.

Conclusion

60. Some of the reasons for the low enrolment of women in S&T training programmes which has resulted in their marginal representation in S&T professions have been identified. Strategies have been suggested for improving this situation. However since the mid-1970s the number of women in science-based professions has increased slowly. One must not expect too much too quickly considering the numerous problems facing the African continent like war, and famine, debt crisis.

61. To achieve the goal of improving women's access to education and training in S&T, a concerted effort is needed. Organizations such as the African Regional

Centre for Science and Technology in Dakar, Senegal and the African Academy of Science in Nairobi, Kenya can continue to play an active role. Women in particular will have to be more active in the implementation of the recommendations and strategies.

62. Financial resources will also be needed. However with proper planning and judicious use of resources a lot can be achieved in a short time. The will is there, and no doubt further progress will be made at a faster pace.

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Fourth Regional Conference on Integration
of Women in Development on the implementation
of the Arusha Strategies for the Advancement of
Women in Africa

6-10 November 1989
Abuja, Federal Republic of Nigeria

THE FLOW OF RESOURCES TO WOMEN IN AFRICA IN THE CONTEXT OF THE FOOD AND DEBT CRISIS

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I. The Context : The African Crisis and its Significance for Women

1. There now exists a staggering amount of writing on the African crisis, so that our knowledge of its nature and its impact on society as a whole is fairly extensive. Yet, because so little of the analysis is conducted in gender-specific terms, we have limited concrete knowledge of how the crisis affects women in their various roles. As the Director General of the United Nations Office at Vienna observed, what happens to women in the context of the crisis takes place "in a kind of factual darkness at what could be called the micro-level of the home, the workplace and the community" while "the crisis itself (is) expressed in terms of macro-economic variables"1/.

2. This state of affairs is indicative of how much distance has yet to be covered in bringing gender issues to the forefront of intellectual and policy debate; at the same time, however, it highlights the technical complexity of working out methods for determining the impact of the crisis on women. Even so, a paper such as this, which attempts to discuss the flow of resources to women in Africa in the context of the food and debt crisis, must attempt, even if generally, to articulate the significance of the crisis for women.

3. The essence of the African crisis is perhaps best summed up by the sobering verdict of the World Bank that "low-income Africa (was) poorer in 1986 than it was a generation ago in 1960". And for 1986-1988, according to ECA "the deterioration in the overall economic situation in Africa continued unabated as economic performance during the period was generally disappointing... per capital income fell by 2.0 and 2.2 per cent in (1986 and 1987) respectively.

4. The crisis has both internal and external dimensions, and it is the mutually reinforcing nature of these dimensions that lends complexity to the African predicament. At the root of the crisis lies a seriously flawed capacity for production, a fact established by incontestable statistical evidence. For many years now GDP in sub-Saharan Africa has either been stagnating or declining, and the overall record is distinctly worse than that for low-income countries as a whole. Even more ominous is the fact that, given the fastest rate of population growth of all regions in the world, per capita income has actually been declining. And those hit hardest by the decline in per capita income are already the poorest members of society, of whom the majority are women.

5. Africa's predicament, which is already bleak, threatens to be even bleaker in the future. According to the Economic Commission for Africa, the future that emerges from the historical trends... is horrendous... The region as a whole would have to depend more on food aid... On the social side, all services would deteriorate in terms of quantity and quality. A smaller portion of the population would be able to have access to education, health or water. Cities would become overpopulated shantytowns as housing would become less available. As a result of such

socio-economic difficulties, the political situation would worsen. Then, riots, crimes and misery would be the order of 2008 if present trends continue without conscious change. With the weak and fragile socio-political systems, the sovereignty of African states will, then, be at stake. As such, self reliance and independence will, to the generation of 2008, sound slogans of the past.

6. The cause for the poor economic performance of African countries must be traced to the very structure of their economies, especially to the role played by the agricultural sector. And the performance of this sector has been dismal. For example, the rate of growth of agricultural production for developing Africa, which was 9.6 % in 1985, had declined to 3.8 % in 1986, and further dwindled to a mere 0.5 % in 1987 2/. The significance of these figures is that agricultural output per capita has been declining.

7. A major consequence of this performance is the "food crisis", about which so much has been written. If a society's capacity for feeding itself is taken as the most elementary test of its viability, then the continent has failed the test miserably. "Africa's food production crisis has accelerated since the early 1970's when per caput food production averaged less than 2 per cent against 3 per cent for population per annum and the per caput food production index fell from 210 kg (in wheat equivalent) in 1970 to 179 kg in 1980. Food annual growth rates during the 1980-1985 and 1986-1987 periods averaged 2.8 and 1.9 per cent respectively - a further deterioration" 3/.

8. Alternatively, per capita food production has declined by 20 % since the 1970s. Thus, "assuming a continuation of the present trend, by the year 2000, low-income sub-Saharan Africa would experience unprecedented severe food deficits that would be difficult to meet by a combination of commercial food imports and food aid" 4/.
The food crisis is especially problematic for women in their dual roles as producers of food and carers for their families. They are affected as producers because "in Africa 85 per cent of rural women are involved in agriculture, where they produce and process as much as 80 per cent of family food consumption" 5/.

9. The structural constraints that bedevil African agriculture also determine the nature of Africa's participation in the international economy, which brings us to the external dimensions of the crisis. This aspect of the crisis can be summed up in one word : dependence. Africa's dependence on the world economy is multi-faceted and overwhelming. This economy provides markets for the continent's exports, serves as a source of much-needed imports, capital flows and technology. It is worth noting in this connection that today, a quarter century after "flag independence", African countries are even more dependent on the international economic system. Two inter-related manifestations of this dependence are the balance of payments crisis and the "debt crisis".

10. The basically agrarian nature of African economies finds reflection in the structure of exports, which is dominated by a few commodities. This concentration on a handful of commodities makes African economies vulnerable to the vagaries of the world market, a situation which is aggravated by a general trend of declining export volumes and prices. For this reason, a chronic current account deficit has become an enduring characteristic of the balance of payments of African countries. This inevitably leads to a decline in foreign exchange reserves. In 1984, for example, ECA estimated that these were only enough to finance two months of imports.

11. A weakening of foreign exhange positions has in turn led to a contraction of imports. Except for a handful of oil-exporting countries, this has meant a reduction in imports of capital goods, whose relative share in total imports has been decreasing while that of food and fuel has been increasing.

12. The deterioration in the foreign trade picture has also had an impact on capital flows from abroad. Between 1980 and 1982, for example, levels of official development assistance stagnated and "net flows from private sources declined sharply (by about 50 per cent) with the decline particularly marked for oil-importing countries" 6/. And all subsequent information confirms that the stagnation has persisted.

13. As a corollary, the continent has been trapped in a "debt crisis", which has tended to intensify in recent years, so much so that a special summit of OAU heads of state had to be convened to deliberate on this specific problem. Africa's total debt in 1988 stood at US$ 230 billion 7/, no small burden for the continent's fragile economies. This figure represents more than 81 per cent of total regional GDP and more than 314 per cent of the annual value of the exports of goods and services 8/. And the debt service ratio had reached 40 per cent in 1988. What is more alarming is that these unhealthy developments have taken place in spite of repeated reschedulings and mounting difficulties in securing new loans.

14. It should be obvious from the foregoing that the African economic crisis has underlying causes, that these causes are mutually reinforcing, that they are both endogenously and exogenously generated and that therefore - they are complex. Such a profound crisis has consequences that transcend the economic sphere.

15. Obviously, the most far-reaching impact is the deterioration in the quality of life, so much so that in many countries "the main issue at stake has not been one of economic and social development, but one of sheer survival".

16. Note should be taken in this connection of the serious problem of urban unemployment, which has been exacerbated by the crisis. Given declining rates of economic growth side by side with a rapidly growing population, the unemployment situation had to deteriorate. According to ILO/JASPA estimate, "unemployment in urban areas would work out to

a startling rate of between 30 per cent and 40 per cent of the urban labour force". Again this affects women more than men, because the former, who are already underrepresented in the labour force (especially in industry) and who are relegated to marginalized positions even when employed, are more likely to be laid off in times of rising unemployment.

17. The other costs of the crisis involve the massive displacement of people and widespread social and political instability. Millions have been forced to abandon their homes in search of food, and this has contributed to the enormous problem of refugees and displaced persons with which the continent has been saddled. And such status compounds the problem of women even more.

18. To sum up, in this environment of economic and social crisis, it would be no exaggeration to state that women as a group have been the most adversely affected by the African crisis. This is because, in their roles as producers (especially of food), as mothers, as wives, and - in many countries as breadwinners for the family, but most importantly as a disadvantaged constituency, women are particularly vulnerable to the crisis.

19. What makes matters worse is that they are also negatively affected by the measures governments take to cope with the crisis. Many African States have resorted to structural adjustment programmes, which programmes have in many cases aggravated -not alleviated - the crisis. As the Secretary General of the United Nations has pointed out, "The most vulnerable population groups, in particular women, youth, the disabled and the aged have been severely and adversely affected, directly and indirectly, by such measures as the withdrawal of subsidies on staple food items, the imposition of limits on wage increases at or below the inflation rate, the retrenchment of civil servants and private sector personnel frequently belonging to the lowest salary categories, and the cutting of expenditures on social services, including health and education, and on basic infrastructure. Access to food has become more difficult for large segments of the population, with the result that malnutrition has increased, particularly among children, infants and pregnant women" 8/. It is for these reasons that an examination of resource flows to women needs to be undertaken in the context of the deep-rooted economic and social malaise that is commonly referred to as the African crisis. But this task has to be preceded by an identification of the major conceptual and methodological problems involved.

2. CONCEPTUAL AND METHODOLOGICAL ISSUES

20. The tasks involved in a study of flow of resources are of enormous magnitude, and this for at least three main reasons. The first concerns the determination of what is meant by resource flows "to women" since these cover a wide gamut of activities. But even if an understanding can be achieved as to what these mean, there is the second problem of determining the exact magnitude of resources that flow to women. If the job is to be done with any degree of accuracy, it would require drawing

up a complete inventory of women's programmes on a country-by-country basis and aggregating them to obtain a regional total, a task which can only be described as daunting at best. Thirdly, there is the even more intractable task of determining the impact of such resource flows both at a local and regional basis. For these reasons, a more detailed examination of the conceptual and methodological issues involved is in order.

2.1 Resource Flows

21. Resource flows must first of all be identified by source. Broadly speaking, there are resources that are generated internally within each country and/or within the continent itself, and there are those that come from abroad. The former could presumably be assembled from budgetary data, but matters are not as simple as that for the reason that government budgets are seldom, if ever, organized in such a manner as to yield information on women's programmes. The external sources are conventionally classified as bilateral (between two governments), multilateral (resource flows from international organizations), and private (which essentially means from non-governmental organizations).

22. A proper determination of the magnitude of resources would require identification of the resources proffered by all these sources. This task would be confronted with the problem that most of the donors do not report their aid flows in a manner that is gender-specific; all too often the classification follows the traditional breakdown by sectors or by general programmes, without giving focus to women's programmes.

23. Secondly, there is the question of resource identification by type. In this case, one could distinguish between financial, physical and human resources. While financial resources may not raise serious problems of valuation, matters are different with respect to the other two because they do not lend themselves to easy quantification.

24. All these, of course, have to be identified on a country by country basis and aggregated for the entire region. And this is assuming that there is a common understanding of "women's programmes", an incorrect assumption as it will be demonstrated below.

2.2 Resource Flows to Women

25. The problem here is, given the wide range of development activities, how to draw the line between those that can legitimately be described as women's programmes and those that cannot. The question can be looked at in three ways. One way would be to include all programmes that are "relevant to women", but this leads to further questions. In one sense, one could argue that all projects are relevant to women because they are likely to benefit women as members of society. But this is not a fruitful approach as it does not permit to focus specifically on women. As Helzner states "since the condition of women is different from that of their community as a whole, the questions raised about women in development must be different from those raised about development in general. In

the past, the effects on women of general development efforts have been mainly unintended effects, and it is a demonstrated fact that in many cases they have set women back. Often this is because women's interests are simply ignored in the planning and implementation stages". But one should also avoid the other extreme of confining the concept of women's programmes to such activities as home economics, family planning, etc., because this is too narrow and because it reinforces the traditional stereotypes of the role of women.

26. A second way of looking at the issue is to define women's programmes as those containing "elements involving women" or as those with a "women's component". Indeed there is now an increasing tendency to incorporate a women's component in all projects, even if this is usually done either as an afterthought or rather perfunctorily, merely as a matter of form. Still, projects of this type have some usefulness, because they give attention to women in their double role.

27. Finally, there are women's projects in the strict sense of the word, meaning those that have women as their only target group. These are usually intended to raise women's incomes and to enhance their self-help capability. There is no problem of identification here, because the question of distinguishing between general and women-specific activities does not arise. For this reason one might be tempted to concentrate on this kind of activity only, but this would obviously give a less than comprehensive picture. Ideally, therefore, one should combine programmes specifically intended for women and those that have a women's component; practical problems on the other hand, might not always permit this approach.

2.3 Impact

28. Assessing the impact of women's programmes is the most intractable problem of all. In general, impact could be examined from either of two angles. One way would be to evaluate programmes on the basis of what they set out to achieve. In other words, one would ask if they have been successful in meeting their intended goals. These goals could be narrow or broad. This may be considered a fair approach because it does not seek to evaluate a project on the basis of objectives it was not established to fulfil.

29. But there is also a case for arguing that a programme should be assessed not merely on the basis of its own specific objectives but independent of these, i.e., in terms of its impact on what are generally considered desirable objectives for women's programmes. This raises the question of what criteria should be invoked to determine the impact of women's programmes. Although one could come up with a long list of criteria, the major questions to ask are to what extent a programme has succeeded in :

(a) raising the incomes of women;

(b) improving the working conditions of women, including reducing their work load and providing them with a better working environment;

(c) advancing the education and training of women;

(d) allowing women greater participation in and control over the decision-making process in society; and

(e) enabling women to exercise greater control over their own lives.

30. Once the criteria are established, there remains the awkward problem of measurement of impact. There are very few studies of this nature to date, owing to, among other things, confusion over programme goals, lack of interest in evaluating impact, the relatively brief time period in which women's programmes have been focussed upon, and - most importantly - the immense difficulties of measurement.

31. The effects of a programme could be tangible or intangible. Thus, although it may not be difficult to measure increases in income, it is a far from simple matter to determine if a programme has been successful in making women more aware of their rights as members of a community.

32. One must also be able to distinguish between the immediate and long-term impact of a programme. While the former may be easier to determine, the latter can only be established over the long haul and it happens to be the more important of the two.

33. There is also the problem of determining impact at different levels : project, programme, country, region. The wider the level of aggregation, the more formidable the task of determining impact becomes.

34. To sum up, one has to realize that this study involves numerous conceptual and methodological problems on top of the all too obvious problem of data availability. For this reason, therefore, the study confined itself to general statements of a qualitative nature. Precise quantification, although highly desirable, was not feasible, given the constraints within which the study was conducted.

3. RESOURCE FLOWS

3.1 Domestic Resources

35. A consideration of resource flows must start with the recognition that, in the final analysis, domestic resources should play a greater role than foreign resources if development is to be autonomous and sustainable. External resources, however instrumental they may be in the initial phase, cannot be a substitute for indigenous effort; in fact, the litmus test of their usefulness is the extent to which they make further external assistance unnecessary. For this reason, a long-term perspective must underscore the importance of domestic resources. Herein lies the justification for dealing with "the domestic front" first.

36. For a number of years now, women's concerns have been receiving attention in continental forums. We note, for example, that two regional meetings on the integration of women in development had taken place prior

to 1980, which year saw the unveiling of the Lagos Plan of Action. This document is noteworthy for the fact that it devoted an entire chapter to "Women and Development". The chapter argued that "the steps to be taken to solve the problems of African women should not be marginal and separate from the question of over-all development", and called on member states "to provide adequate resources and technical personnel" to make national machineries for women functional. The Plan also recognized that "it is important to stress to national directors of statistics the need for breakdowns by sex in order to identify areas for action relevant to women". The Lagos Plan of Action is noteworthy, not for any original ideas expressed, for there are none, but because it recognized the importance of the gender question. In fact, its critics say that they have "both appreciated the attention given to the issue and criticized its compartmentalization as a chapter" adding that, although the Organization of African Unity (OAU) had, subsequent to the Lagos Plan, sponsored some WID activities and that it had taken "a formal stance" to encourage the development of women-focused organizations in Africa, "the effort was half-hearted" 9/.

37. The next important milestone was the third regional meeting which was held in Arusha in October 1984, with the main objective of drafting strategies in preparation for the 1985 Nairobi Conference marking the end of the UN Decade for Women. In 1986, African States came out with the African Priority Programme for Economic Recovery (APPER), which was presented to a special session of the United Nations General Assembly. In a sense, APPER represents a step backward compared to the Lagos Plan as far as women's issues are concerned. The document barely mentions the problem, except in a couple of marginal references. Where it discusses food and agriculture, it states that "the focus of attention must be the peasant farmer with special reference to female farmers who dominate food production in most countries", and in the section dealing with human resources, the only mention of women is the following : "We are also committed to ensure good working conditions and the growing role and participation of our(sic!) women and youth, particularly those living in the rural areas, in the development process".

38. One can go even farther and argue that the commitment <u>in deeds</u> of regional organizations to women's concerns leaves much to be desired. For instance, it is revealing that to date the OAU has set up a women's unit in its secretariat but has failed to make it fully operational athough it is quite some time since an expression of intent was made.

39. It may be contended that the ECA has done considerable work in this regard, and the existence of the African Training and Research Centre for Women (ATRCW) may be cited as proof. Yet, the ATRCW depends mostly on extra-budgetary sources for financing its activities. Secondly, it is inadequately staffed, its permanent posts are only a handful. For a centre whose activities are of continental scope this is obviously too small. It is also noteworthy that out of all resources allocated to the ECA Secretariat, female professional employees represent 11 % of employees of that category, a figure that falls far short of the 30 % target for 1990 set by the United Nations General Assembly.

40. A third regional organization worth looking at is the African Development Bank (ADB). This institution has established a Women in Development Unit in its central Projects Department and "the unit has drafted a position paper as well as guidelines that Bank staff use in the preparation of Bank-financed projects". In its lending procedures, the ADB Group "is placing a premium on projects that promote women's contributions to development". Yet, as the ADB Group itself acknowledges, it has yet to take steps that include "the strengthening of its WID Unit, the formulation of coherent policy, the establishment of comprehensive guidelines and the mobilization of human and financial resources".

41. At the national level too, there is no country that does not have a machinery of integrating women in development. However women's concerns are not accorded the seriousness that they deserve in most plan and budget documents of individual states. One obvious manifestation is that plan or budget documents hardly attempt to present resource allocation patterns along gender-specific lines. For this reason, it is virtually impossible to arrive at a determination of the resources devoted to women's programmes. The guess can be hazarded, however, that they are likely to be insignificant.

3.2 External resources

42. There is no doubt that there is greater awareness today of gender issues among the international aid community compared to the situation ten or fifteen years ago. Perhaps largely due to the educational efforts of the United Nations Decade for Women 1976-1985 and due to activities linked to it, there is hardly a donor today that does not, at least at the level of policy articulation, express a commitment to women's concerns.

43. One should hasten to add, however, that policy articulation is one thing while practical implementation could be altogether different as demonstrated below. Yet, since the chasm between declared policy and practice is seldom complete, it is difficult to consider resource flows without some understanding of the relevant policy framework. This is why an examination of current policy and its evolution would be in order. But since this cannot be done for all donors, or even for all the major ones, the discussion will be limited to one major multilateral source (the World Bank) and to one bilateral source (the United States Agency for International Development) in the hope that they will give a fairly representative picture. A few other donors will be treated less extensively.

A. The World Bank

44. The World Bank's interest in gender issues is of fairly recent origin. It was only in a 1977 speech on population issues that "World Bank President McNamara mentions women for the first time as target group for development interventions" 10/. The Bank subsequently recognized the gender issue in a 1979 document entitled "Recognizing the "invisible"

woman in Development : the World Bank's Experience". This document "highlights employment and [illegible] as one area of Bank work because women make up a large percentage of the poor, and because women's employment outside the home is related to declining birth rates". The World Bank has now a Women's [illegible] population in the population and human resources department, which division "is engaged in a number of activities designed to [illegible] increase and capacity, initiate research and policy work to provide improved analytical tools, and build up operational capacity through the development and dissemination of training".

45. In the early eighties, however, for the Bank and other major lenders, the recession and the debt crisis seem to have dictated a retrenchment of anti-poverty programme. Consequently, "the concern with the poor in general, and with women in poverty in particular, was put on the back burner". But a resurgence seems to have taken place "in the last year or two". In a 1987 speech to the Safe Motherhood Conference in Nairobi, Bank President Conable "argued for increasing women's earning capacity and control over their own earnings". Further, the Bank's Annual Report for 1988 announces that a "new approach was initiated in fiscal 1987...aims at making its efforts on WID more systematic. This approach, which gathered momentum in fiscal 1988, concentrates on showing what can actually be done to include women [illegible] and how inclusion, in turn, contributes to the attainment of other development objectives ...".

46. The 1988 Annual Report [illegible] that, prior to 1987, the Bank's WID activities [illegible] and [illegible] and staff training". Even more forthcoming is Bank [illegible] Conable, who wrote in a memo of April 12, 1989 : "I have been [illegible] me about the depth and strength of our commitment to the Women in Development Initiative... My review of major [illegible] and [illegible] strategy papers leads me to the conclusion that the role of women in the development process has rarely been integrated into the planning underlying country assistance programs. There are [illegible] exceptions to this pattern. But we must raise our sights and work on a broader front in order to be effective - and we must act now".

47. He then goes on to call for a [illegible] of women's potential role in development for each country, and announces that he has set aside US$ 35,000 for each country for this purpose. It should be noted that in none of the Bank's annual World Development Reports is the role of women discussed specifically, not even in the 1990 report which concerned itself with human resources. Further, an examination of the Bank's lending records will not give a glimpse of what is allocated for women's programmes, for the simple reason that the data are not disaggregated along gender-specific lines.

48. The 1989 report on Sustainable Growth with equity a long term perspective for sub-Saharan Africa has depicted the role of women in production of food crops and trade, in the informal sector and as providers of social services to the community. The document discusses various constraints which confine them in small scale operations and calls for special attention to women's legal, economic and social rights. This makes it clear that the Bank's involvement in women's programmes is now on a sound footing.

B. United States Agency for International Development (USAID)

49. When one turns to the United States Agency for International Development, we find that its concern with women dates to an earlier period, specifically to the "Percy Amendment", which required aid programmes to "be administered so as to give particular attention to those programs, projects and activities which tend to integrate women into the national economies of foreign countries, thus improving their status and assisting in the total development effort". In 1974 an Office of Women was set up within USAID to administer funds designated "primarily to support activities which will increase the economic productivity and income earning capacity of women". Its two main priorities are described as to : "(1) institutionalize among A.I.D. staff the ability to analyze gender issues and their impact on project effectiveness; and (2) while undertaking the above, facilitate the integration of women into all phases of A.I.D. programs and projects" 11/.

50. In 1982, AID issued its policy paper entitled "Women in Development", whose essence has been summarized as follows :

- One of the premises of A.I.D.'s women in development policy is that gender roles constitute a key variable in the socio-economic condition of any country;

- One that can be decisive in the success or failure of development plans.

51. One reading of this policy paper is that from a general call for integration, the thinking at the agency evolved to the identification of women in development with the expansion of women's economic opportunities.

52. It is thus clear that USAID is on record with a strong commitment to women's programmes. But a closer look suggests that policy and practice have not always moved in tandem. This comes out from the hearing before the Select Committee on Hunger of the House of Representatives of the United States Congress, held on April 8, 1987. One of those who made an appearance to provide testimony stated that the agency "has reduced its interest in women in recent years". In the same hearing, the chairperson referred to "proposals which have been made to eliminate or decrease the role played by A.I.D.'s Women in Development Office" and

asked, "What do you think will happen to the women in development initiative if this did happen?" The reponse was as follows : "I think it would be disastrous. There has already been a decreasing emphasis and concern with that office for the last 7 years, and I think it's very clear that as a result there has been less pressure on the Agency rather than more to increase its concern of including women in all of its programs".

53. It is also interesting to note that "while the stated annual budget for women in development is US$ 2 million, the total WID budget is very difficult to determine" 12/. In fact, independent research has shown that "only 4.3 per cent of regional bureau funding for USAID projects in Africa went to projects that were either specifically directed at women or had a component including women; in addition, only 4 of 45 agricultural projects designated women as beneficiaries". Let this not be taken as unique to USAID. "The pattern uncovered in USAID, where sufficient resources are allocated to mount a WID program but not to carry it out effectively, is also charted for the United Nations and other organizations. Between 1974 and 1980, a period that included half of the United Nations Women's Decade, only 4 per cent of projects involved the participation of women; of these, half had only a minor level of participation by women" 13/.

54. The case of USAID discussed above illustrates, the information gap. Even the donors themselves do not seem to have exact knowledge of how much they devote to women's programmes globally, let alone specifically for Africa.

C. Canadian International Development Assistance (CIDA)

55. CIDA's interest in women seems to be a fairly recent one, because it is only in 1984 that it "approved a framework and an implementation strategy for the integration of women in development" 14/. In fact, an action plan was launched only in 1986 and it was intended to cover a five-year period. In this plan, WID objectives are well articulated and cover the broad spectrum of women's activities.

56. Africa is targeted to be the single most important recipient of CIDA's total foreign aid, accounting for 45 per cent of bilateral aid for the five-year period starting 1987 15/. It is reported in the 1986 Women in Development : CIDA Action Plan that Canadian assistance to Africa in 1986-87 amounted to more than US$ 900 million, but the women's component of such assistance is not revealed. What is disclosed, however, is that over the period 1986-90, $ 25 million have been allotted to women's programmes in Africa. On an annual basis, this would work out to $ 5 million, or to less than 1 per cent of total assistance.

D. Swedish International Development Authority (SIDA)

57. SIDA is on record as stating that its approach to gender issues is "to recognize women's role in development cooperation, rather than to support separate women's programmes". The example provided is that "in agriculture this would mean...to support not only cash crop production

but also extension, credits marketing, research, etc. on food crops, i.e. traditionally women's crops". SIDA stated that it has not yet found methods to assess (t.e) distribution of resources within regular cooperation to women and men". What is interesting about SIDA's position is that it demonstrates the difficulty donors have in determining exactly how much of their assistance goes to benefit specifically women.

E. United Nations Development Fund for Women (UNIFEM)

58. UNIFEM is the successor to the Voluntary Fund for the UN Decade for Women, which was set up by the General Assembly towards the end of 1987; the transition to UNIFEM (henceforth also referred to as the Fund) was effected by a decision taken in December of 1984. The Fund was set up as "a separate and identifiable entity in autonomous association with UNDP", because it was felt that "a special financial and technical enabling instrument - a fund was needed to reach the long-term goal of having women considered in appropriate ways in all development cooperation activities" 16/. Quite clearly, therefore, all the activities of the Fund are directed specifically at women.

59. The Fund's annual programme was to the tune of about US$ 7 and 10 million in 1987 and 1988, respectively, but an annual amount of $ 20 million is foreseen by 1991 17/. However, Africa's share for the five years 1987-1991 is budgeted as $ 0.5, 0.9, 0.95 and 1.03 million. In all of these years the average of Africa's share works to about 7 per cent.

F. United Nations Development Programme (UNDP)

60. UNDP established a division for women in development in April 1987 with the aim of assisting governments " in integrating and promoting women in their development activities". In 1988 the UNDP Administrator admitted that its programmes prior to 1987 were marked by "gender blindness', but states that thenceforth "country programming will attempt to address women's actual and potential contribution to sectoral and overall development in a more concrete manner"

G. United Nations Fund for Population Activities (UNFPA)

61. Of the four priority areas of assistance to sub-Saharan Africa approved by the Governing Council of UNFPA in 1987, one is "contributing to the improvement of the status of women". But the Fund's assitance in this area dates to a much earlier period, although on a very modest scale. Total UNFPA assistance to Africa over the period 1970-85 amounted to US$ 206 million, which represents 15.4 % of overall programme assistance 18/. Of this sum, only 1 % was devoted to "special programmes related mainly to women". In fairness to the UNFPA, it must be recognized that most of its other activities (for example, population information, education and communication) do benefit women.

62. In terms of plans for the future UNFPA has allotted $ 3.6 million to "projects seeking to advance the status and conditions of women" for the period 1987-1991. It is noted that "this (is) more than three times the amount expended from 1969 to 1986". The amounts spent in 1987 and 1988 for "special programmes" in sub-Saharan Africa were $ 0.4 and $ 1.1 million, respectively, their relative shares in total assistance representing 1.8 % and 2.6 % 19/. Thus, while the level of assistance to women's programmes is low, it is encouraging that it has been rising in both absolute and relative terms.

H. International Labour Office (ILO)

63. Although the ILO's interest in women's concerns dates back to its establishment in 1919, its "earlier efforts were concentrated only in protecting women's reproductive function and improving their miserable conditions"; by 1947, however, its policies "underlined equality of opportunity and remuneration of women workers".

64. Currently, the ILO divides its women's programmes into "women-specific" and "women-component" projects, with the latter defined as those "which include a distinct women's component in the provision of separate resources for project activities aimed at women, or projects where the portion of the overall resources spent on female beneficiaires could be easily identified, for example through payrolls". The ILO states that "whereas previously resources were directed primarily to women-specific projects, gradually a two-pronged approach has emerged, whereby experience gained through women-specific projects is used to make mainstream projects more adapted to women's needs, by building in specific components". Globally, the ILO was running 137 projects as of June 1989, with a total cost of US$ 44.2 million.

65. Information on the magnitude of ILO's assistance to women's programmes in Africa is very comprehensive, and the essentials, as of June 1989, are summarized below :

Project Type	Cost (US$)
Multi-bilateral	10 203 036
UNDP/ILO	10 640 109
UNFPA/ILO	1 594 870
ILO/World Bank	65 973

I. United Nations Children's Fund (UNICEF)

66. UNICEF's stand, at least as of 10 April 1989, is similar to that of SIDA. This position is that "projects which are women-specific only should be the exception", while what is favoured is "the integral programme approach...to achieve the full incorporation of women and girls into national and sectoral planning" 20/. This means that special projects for women will be supported only "when these function as "bridging strategies" to bring women to a threshold of opportunity so that they can more fully participate and benefit from mainstream development efforts".

67. For this reason, it is difficult to determine the women's component of UNICEF's assistance, and this example lends additional force to the earlier argument that in many instance even the donors themselves are hard put to indicate the magnitude of resources they are devoting to women's programmes.

Conclusions

68. The organizations discussed above are by no means all, or even most of the donors involved in women's programmes in Africa. For this reason, the discussion makes no claims to a comprehensive review of the resources available for funding such programmes. Yet, it is adequate for providing a general picture and for drawing certain conclusion.

69. First, all major donors are now on record as expressing commitment to women's concerns. Even if a good deal of this commitment is of recent origin, the indications are that it is likely to abide. This is an encouraging development.

70. Second, the resources allocated to women's programmes in Africa show a rising trend, and there is satisfaction to be gained from this as well.

71. Third, and as a qualification to the two conclusions above, it is noted that (a) funds allocated usually fall short of the rhetoric that accompanies them, and (b) they pale into insignificance when compared with the enormous unmet needs of African women.

72. Therefore, while it is encouraging that women's concerns have been commanding greater attention among the donor community, it should also be remembered that there is no room for complacency in this regard.

4. IMPACT OF RESOURCES

73. Without rehashing the arguments presented in Section II of this paper, there is need to reiterate that the impact of resource flows on women is extremely difficult to determine. The cardinal question is, of course, what difference, if any, these resources have made in the lives of African women. And the answer to this question can be attempted at two levels.

74. At the policy level, one is interested in finding out to what extent decision makers are sensitized about gender issues and thus to what extent the policy environment is more "enabling" for African women. There can be no doubt that the governments of the region are today more conscious of women's concerns than they were a few years back. What one cannot be sure of, however, is how much of this is due to resources expended on women programmes and how much of it is due to efforts made to bring gender issues to the forefront of the development agenda. While it seems plausible that the latter factor is more weighty, it is likely that some of the resources, especially those that have been instrumental in the setting up of national machineries for women in various countries, have contributed to the emergence of a greater awareness of gender issues by those who make decisions. It is another matter, however, when one comes

to the participation of women in the decision-making process. In this respect, one could argue intuitively that women have made very little dent, notwithstanding the semblance of involvement that one sees in certain circumstances.

75. At the operational level, the significant question is whether the resources committed to women's programmes have improved the situation of African women in terms of raising their incomes, reducing their burden of work, giving them greater access to resources and to opportunities for advancement, etc. Since this is a question that is virtually impossible to answer for reasons sketched in Section II of this paper, we are compelled to confine ourselves to some general statements.

76. The impact of women's programmes depends on a wide variety of factors, including the size and source of resources, the type of activities which the resources are devoted to, the policy environment, the absorptive capacity of the aid recipient, and the socio-cultural milieu, to name only some of the most important variables.

77. With respect to the size of funds, there is nothing to add to what was said in Section III; it is the familiar story of too many needs but too few resources. Perhaps the more interesting question here is how effectively the admittedly limited resources have been utilized. A pertinent issue here is one of sustainability, i.e., how sustainable the various women's programmes are, and it is in this context that the source of funding becomes relevant . The story of foreign-financed programmes that terminate or continue ineffectively when the assistance ceases is too familiar to recount here, and it would not be off the mark to speculate that this is true of at least some women's programmes in Africa.

78. Another important determinant of impact is of course the nature of activities undertaken. As indicated earlier, women's programmes could be classified as those that are women-specific, those with a women's component and those that integrate women in mainstream projects. The merits and limitations of these types of programmes are by now so well-known that they can be passed with a brisk review.

79. The first type have the advantages that all project resources accrue to women, that they give women greater opportunities for acquiring leadership qualities, and that, in the absence of male competition, it may be easier to train women in non-traditional skills. The major problems with such projects are that they tend to be small-scale and under-funded and that, because they isolate women from mainstream development, they lead to their further marginalization.

80. Larger projects with a women's component usually generate more resources and they give women a greater opportunity for "catching up" with men. However, the women's component is likely to receive less funding than other components.

81. The main advantages of integrated mainstream projects are the greater resources they command and the guarantee they provide against the marginalization of women. However, it is quite possible for women's concerns to be excluded or under-represented if care is not exercised to prevent such an outcome. Because women start from a situation of comparative disadvantage relative to men, they may lose out in integrated projects.

82. Traditionally, donors have tended to concentrate on women-specific projects, but recent years have witnessed a move away from such a strategy, at least in cases where the major concern has been to raise women's income 21/. USAID evaluation of 102 projects over 10 years concludes that women-only projects are best suited to delivering training rather than to increasing production and generating income 22/. While this may legitimately be taken as an argument for integration, one must however "make sure that it is the women and not the project funds that are integrated". This is because, although the funds committed may be adequate, women may not benefit fully from them simply because they are not given enough opportunities to participate in the running of the projects.

83. When considering the impact of women's programmes, another distinction worth bearing in mind is that between projects with a production orientation and those with a welfare orientation. In general, the latter have had limited success. Welfare oriented programmes, such as nutrition or family planning, view women as "beneficiaries" rather than "producers" of development. The "beneficiary" view presumes that women do not have a major contributing role to economic development. Typically, welfare oriented programs are designed to deliver information, provide education and services and promote the public good in the form of community programs. They are generally characterized as small scale, ad hoc and focusing on stereotypical female tasks and volunteers are often requested to work as program implementors or participants.

84. In one study Buvinic suggests that four types of projects "have been supported most often to expand the economic opportunities of poor women", namely small and microenterprise development, income generating projects for poor women, vocational education and food for work projects. The record is summarized as follows : "The project experience of the last decade has shown that small and microenterprise development projects are more effective vehicles to increase the economic opportunities of poor women, especially when compared to income generating projects and food for work interventions. Vocational education schemes have not been very successful but the evidence suggests that these schemes can increase women's income earning opportunities if they are implemented by technically qualified agencies and train women in skills for which there is an effective demand in the labor market.

85. The impact of resources also depends on the absorptive capacity of those on the receiving end. This includes, among others, institutional capability, technical expertise, and degree of motivation. In most cases, these are wanting. As Otero concludes, the choice of implementing agency is one of the most important elements in project design. One might assume that women's organizations are the best suited to implement projects that include women. However, experience with project designed to reach women indicates that the failure of programs is often traced to lack of technical and/or managerial expertise on the part of the implementing agency, and women's organizations are sometimes weak in this respect. This should not be misconstrued as an argument for leaving women's projects to "expert" organizations. The point is rather that implementing agencies should have "a blend of appropriate technical expertise and a commitment to developing or recruiting expertise on women's issues relevant to the project" 23/.

V. CONCLUDING REMARKS

86. One fact that emerges quite clearly from this paper is the paucity of readily available information on resource flows to women in Africa. To begin with, and as indicated earlier, a number of donors find it impossible to determine the women's component of their assistance programmes. However, even for those who do not find this impossible, the comprehensive aggregation of the available information and its systematic interpretation are rather daunting tasks.

87. It needs to be emphasized that this is true of African governments as well. Because little, if any, attempt is made to organize the available information on a gender-specific basis, it is impossible to determine, for example, what percentage of budgetary resources is devoted to women or to establish the impact of various projects on women.

88. This state of affairs is itself symptomatic of the attention given to women's concerns. If such attention is to be real, it must transcend policy articulation and involve serious monitoring of women's programmes, for no proper analysis of their effectiveness can be undertaken in the absence of such monitoring. Nor can the more important task of impact assessment be conducted without effective monitoring. As an immediate task, therefore, a study of the type attempted in this paper, but backed by the requisite resources and involving a much broader time frame for the exercise, needs to be undertaken.

89. This will require the concerted effort of both donors and recipients of assistance. Donors need to establish a machinery which can serve as a clearing house on assitance pertaining to women's programmes. This does not necessarily involve setting up a new institution; what is required is a mechanism through which existing institutions can pool together whatever information is available. Information is of the essence, and its comprehensive and systematic compilation brooks no delay.

90. On the part of African governments and international organizations such as ECA this requires constant monitoring of women's programmes with a view to enabling a regular assessment of their impact on African women. Obviously, there is no shortage of evaluation reports on specific projects in individual countries. What is required, however, is a national and regional perspective, and this is clearly lacking. Such periodic assessments are the basis for improving on the design and implementation of women's programmes and must be accorded the attention they deserve.

91. In the final analysis, the ultimate test of assistance to women's programmes is their success or failure in galvanizing African policy makers to take gender issues more seriously, and this is a task that has yet to begin in earnest.

92. In a larger sense, therefore, what is critical is not really how much money has gone into income-generating activities here or vocational training programmes there, but how much has been done to create an environment in which women will be not only participants in the process of development but also beneficiaries of its fruits. Even more, the crucial test is how much say women have in decisions that affect society as well as their own lives as women. By these admittedly demanding criteria, the results obtained to date, even if they should not be disparaged, leave much to be desired. And this represents a major challenge to African governments and regional organizations, which must bear the major responsibility for creating an environment which would enable the continent's women to realize their full potentials.

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